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Horndeski model coupled to pure de Sitter supergravity

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We discuss the embedding of the Horndeski model into supergravity. In the case of linearly realized supersymmetry, higher derivative interaction often leads to ghost and propagating auxiliary field problems. Therefore, supergravity realization of the Horndeski model has not been known so far.

These issues can be circumvented in the recently proposed framework, called pure de Sitter supergravity, where supersymmetry is nonlinearly realized. The pure de Sitter supergravity is also known to be an effective description of anti-D3 brane in superstring theory. We will show how the Horndeski Lagrangian can be realized within the nonlinearly realized supergravity. We will also discuss the implication of the Horndeski model in supergravity.

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